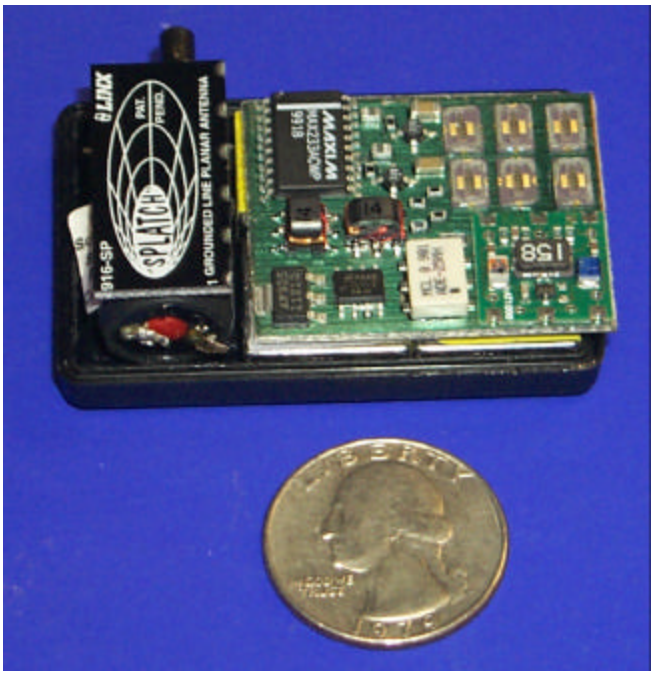
SURFACE ACOUSTIC WAVE CHEMICAL SENSOR



Surface acoustic wave (SAW) sensor systems have been developed as highly sensitive noses for gas detection and identification. Individual SAW devices operate by generating surface mechanical oscillations in piezoelectric quartz, with frequencies in the MHz range. Coating the SAW devices with different polymeric materials that selectively absorb different gases allows gas detection by changes in SAW frequency. Arrays of polymer coated SAW devices detect different gases and pattern recognition techniques interpret data and identify unknown(s). Various prototypes have been extensively field tested.

Features and advantages include:

- Rapid response (~2 sec); 100% reversible recovery in 5-100 sec.
- High sensitivity (parts per trillion) with quantitative determination
- High selectivity based on chemoselective polymers
- Hand-held size, or smaller w/ battery power
- Able to detect multiple species simultaneously using polymer array
- Capable of remote monitoring via radio/wireless telemetry
- Long polymer lifetime (>1 year)
- Simple gas sampling; no carrier or support gases required

Applications include:

- Environmental atmospheric testing for industrial hygiene or pollution control/monitoring
- Public safety against chemical threats
- Fire detection

Licenses are available to companies with commercial interest.

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